

What is claimed is:

1 - An assembly (1) formed of a tubeless tire (10) mounted on a mounting rim (20), this
5 tire having two beads (11) designed to cooperate with the mounting rim (20) comprising
edges for limiting the axial distance between the beads of the tire, this tire having
furthermore a crown (13) and sidewalls (12) connecting the beads (11) to the crown,
this tire defining with the mounting rim (20) a cavity inside which there is placed a
body (30) toric in form and defining, when the tire is inflated, a cavity inside said body
10 (30) and an outer cavity with the tire, the inner and outer cavities intercommunicating in
such a way that the body (30) is not subject to any inflation force in normal use (i.e. tire
inflated to its utilisation pressure), this body (30) comprising a skin (31), of resilient
elastomeric material capable of deformation, reinforced by a carcass reinforcement
(311) anchored to two inextensible circumferential reinforcement structures (33), whose
15 internal diameter is less than the maximum diameter of the rim (20), this carcass
reinforcement (311) being capable of withstanding the forces applied by an inflation
pressure corresponding to the rated inflation pressure of the tire inside which the body
(30) is placed, this body (30) being **characterized in that**, in the presence of a puncture
(100) in the tire, the skin (31) deforms, at least locally and virtually instantaneously, in
20 order to block at least temporarily the puncture (100) so as to limit, at least temporarily,
the loss of inflation pressure in the outer cavity between the tire and the body, and to
ensure transition to a state of equilibrium in which the body (30) is deformed and serves
as a support for the tire (10) after complete loss of pressure in the outer cavity.

25 **2** - An assembly (1) according to claim 1, characterized in that the body (30) is a closed
torus provided with at least one opening for communication between the inner and outer
cavities.

3 - An assembly (1) according to claim 1, characterized in that the body (30) is a torus
30 which is open substantially axially between the inextensible circumferential
reinforcement structures (33) of said body.

...

4 - An assembly (1) according to any one of claims 1 to 3, characterized in that the carcass reinforcement (311) of the body (30) comprises at least two plies each formed of a plurality of reinforcement elements, in the form of textile cords or cables, forming, in the radially outermost part of the body, angles of at least 25° with the circumferential direction, the reinforcement elements of the plies being crossed over one another.

5 - An assembly (1) according to claim 4, characterized in that the reinforcements of the carcass reinforcement (311) of the body (30) are cords or cables of aromatic polyamide.

10 6 - An assembly (1) according to any one of claims 1 to 5, characterized in that the body (30) comprises a crown part (34) radially towards the outside, said crown part comprising a reinforcement structure (341) formed of a plurality of reinforcements in the form of continuous or discontinuous cords or cables.

15 7 - An assembly (1) according to claim 6, characterized in that the reinforcement structure of the crown part (34) of the body (30) comprises a plurality of reinforcements disposed in a direction forming an angle of at most 10° with the circumferential direction.

20 8 - An assembly (1) according to any one of claims 1 to 7, characterized in that the body (30) comprises a framework (40, 400) placed inside said body and independent of said body, said framework having the function of causing the body (30) to adopt a form defining an inner cavity volume at least equal to one third of the maximum cavity volume defined by the tire (10) and its mounting rim (20).

25

9 - An assembly (1) according to claim 8, characterized in that the framework (40) comprises at least one circumferential band (41) of a rigidity appropriate for imparting to the body (30) a circumferential length appropriate to said body and, firmly connected to said band (41), a plurality of bows (42) imparting their shape to the body (30) in the transverse direction.

30

10 - A body (30) of toric geometry around an axis of rotation and designed to be placed inside an assembly formed of a tire (10) mounted on a mounting rim (20) so as to seal any puncture (100) which said tire (10) may suffer and to reduce the rate at which pressure is lost in the tire while providing said tire with an inflated support, this body
5 (30) comprising a skin (31), of resilient elastomeric material, reinforced by a carcass reinforcement (311) anchored to two inextensible circumferential reinforcement structures (33) incorporated in said skin (31), these inextensible structures (33) having an internal diameter of less than the maximum diameter of the rim (20), this carcass reinforcement (311) being capable of withstanding the forces applied by an inflation
10 pressure corresponding to the rated inflation pressure of the tire inside which the body (30) is placed, this body being **characterized in that**, under the action of local low pressure, said body (30) comes virtually instantaneously into contact with the tire (10) at the site of the puncture (100) and in that said body (30) is capable of withstanding an inflation pressure equal to that of the tire (10) in which it is intended to be placed.

15

11 - A body (30) of toric geometry according to claim 10, characterized in that the body (30) is a closed torus whose skin (31) is provided with at least one small opening, said opening being located radially to the inside of the inextensible circumferential reinforcement structures (33) providing anchorage for the carcass reinforcement (311).

20

12 - A body (30) of toric geometry according to claim 10, characterized in that the body (30) is a torus open axially between the inextensible circumferential reinforcement structures (33) providing anchorage for the carcass reinforcement (311).

25 13 - A body (30) of toric geometry according to any one of claims 10 to 12, characterized in that the carcass reinforcement (311) of the body (30) comprises at least two plies each formed of a plurality of reinforcement elements, in the form of textile cords or cables, oriented on the inflated body in directions forming angles of at least 25° with the circumferential direction, the reinforcement elements of the stacks being
30 crossed over one another.

- 14 - A body (30) of toric geometry according to claim 13, characterized in that the reinforcements of the carcass reinforcement (311) of the body are cords or cables of aromatic polyamide.
- 5 15 - A body (30) of toric geometry according to any one of claims 10 to 13, characterized in that the body (30) comprises a crown part (34) radially towards the outside, said crown part comprising a reinforcement structure (341) formed of a plurality of reinforcements in the form of continuous or discontinuous cords or cables.
- 10 16 - A body (30) of toric geometry according to claim 15, characterized in that the reinforcement structure of the crown part (34) of the body (30) comprises a plurality of reinforcements disposed in a direction forming an angle of at most 10° with the circumferential direction.
- 15 17 - A body (30) of toric geometry according to any one of claims 10 to 16, characterized in that each inextensible circumferential reinforcement structure (33) is a bead wire of aromatic polyamide, said bead wire making it possible to withstand the forces applied by an inflation pressure equal to the inflation pressure of the tire inside which said body is placed, while facilitating positioning.
- 20 18 - A body (30) of toric geometry according to any one of claims 10 to 17, characterized in that the means of imparting a geometric shape to said body (30) consist of a framework (40, 400), of appropriate rigidity, placed inside the skin (31) while being independent of said skin (31), this geometric shape defining a cavity volume at least
25 equal to one third of the internal volume of the tire (10) in which the body(30) is intended to be placed.
- 19 - A body (30) of toric geometry according to claim 18, characterized in that the framework (40, 400) comprises at least one circumferential structure (41, 41', 41'') of
30 suitable rigidity for imparting to the skin (31) a given circumferential dimension and, firmly connected to said circumferential structure (41, 41', 41''), a plurality of transverse bows (42) imparting their shape to the body (30) in the transverse direction.

20 - A body (30) of toric geometry according to claim 18, characterized in that the framework (40) comprises two circumferential structures (41', 41'') of suitable rigidity for imparting to the skin (31) a given circumferential dimension at two axially distinct
5 points, these two circumferential structures (41', 41'') being connected by at least one bow (42) whose function is to hold said two structures axially apart.

21 - A body (30) of toric geometry according to claim 18, characterized in that the framework (400) consists of at least one toric base annular spring (401) imparting its
10 toric shape to the skin (31).